

Commission C35 - Monitoring methods and approaches in engineering geology applications

In 2017, the Commission C35 continued the collection of case studies and methodologies related to the use of Remotely Piloted Aerial Systems (RPAS) for engineering geology applications. Several members of the working group proposed in 2016 answered to the call, and some case studies that describe possible RPAS applications for the study of debris flows, landslides and infrastructures damaged by earthquakes have been collected.

C35 Commission also supported the organization of the Summer School for PhD students *“Slope dynamics and responses of surface processes to climate change: the case of the Mont Blanc massif”*. The course has been jointly organized by the Department of Earth and Environmental Sciences of the Pavia University and the Research Institute for Geo-hydrological Protection of the Italian National Research Council and it was aimed to provide an overview of the geomorphic processes in high mountains, gathering numerous research experiences with a multidisciplinary approach. The Summer School investigated different case studies in the Italian side of Mont Blanc massif (Courmayeur, Italy). The Mont Blanc massif is a key area where numerous geo- and ecological processes of high mountain regions and related to geology, cryosphere, hydrology, soil and vegetation can be observed and measured. The geological and geomorphological setting, the steep topography, the distinctive meteorological conditions and the heterogeneity of the geosystems, make this area particularly subject to gravitational processes and slope instability. These processes are enhanced by the ongoing climate warming and may expose infrastructures and human activities to high levels of risk.



The Summer School participants on the top of Punta Helbronner Skyway (3,466 m a.s.l.). In the back of the picture, the top of the Mont Blanc (Mont Blanc de Courmayeur).

The Summer School program presented a description of the dynamics of the Grandes Jorasses and Planpincieux glaciers, those of the Miage and Brenva debris-covered glaciers and the recent evolution of the Mont de la Saxe landslide. In addition, the course also analyzed the latest results of studies related to the highest rockwalls of Mont Blanc that have recently been affected by numerous large rocky landslides. The increase of these phenomena has been related to the permafrost degradation due to climate change.

The area of Courmayeur provided an ideal context to develop a teaching initiative by integrating classroom lectures and fieldtrips, in order to promote several research and monitoring activities currently in progress.

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